



MDS Past Projects

Satchel

[Home](#)[Showroom](#)[Research](#)[Development](#)[Publications](#)[People](#)[Search](#)[Contact](#)[Feedback](#)[Employment](#)[Site Map](#)

MDS Links

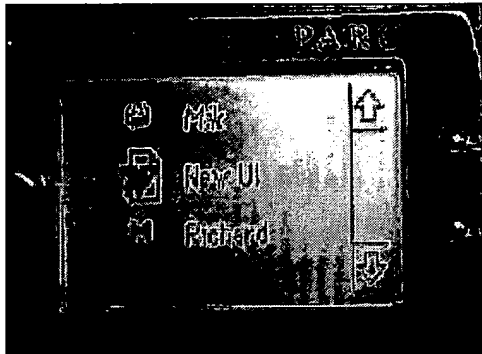
[Home](#)[Background](#)[Past Projects](#)[Research Agenda](#)[People](#)

Satchel is our most recent project. It has evolved out of our interest in context-sensitive user interfaces and mobile document work. Satchel uses small mobile computing devices and wireless communications to give users streamlined access to documents and document services anytime, anywhere. We have developed several prototype implementations of the system on a variety of platforms. We are also engaged in a number of technology transfer activities.

For a brief summary of the system, look at the [Satchel Summary document](#).

Technical report [EPC-1994-104](#) contains some predictions about the kind of mobile devices we have been using.

There have been several prototypes of the Satchel system:

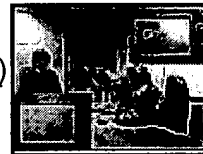


The Tab Satchel

The Tab Satchel was based on the Xerox [PARCTAB](#), a small wearable computing device. It was the first implementation of Satchel, developed in early 1994.

This video shows the Tab Satchel in action.

[Tab Satchel \(Quicktime: 5 minutes & 27Mbytes!\)](#)



The Newton Satchel

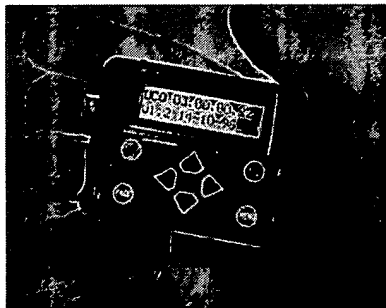
The Newton Satchel was first developed in 1994 and has been through several prototypes. The Apple Newton uses infra-red communication to other Newtons, so it could be deployed without the need for the extensive infrastructure required by the Tab system. The first system allowed users to exchange, print, view and scan in documents. As the World Wide Web developed, we re-implemented

Satchel in terms of the Web, giving universal access to documents and services from anywhere. This required the establishment of a security model which was compatible with existing web infrastructure, and defining the ways in which documents and services could be accessed on any device or computer anywhere. The Newton Satchel was installed at XRCE Cambridge and then at XRCE Grenoble in December 1995, and two internal trials were carried out.

Further development during 1996 provided the ability to connect to the network from anywhere using a Nokia 2110 digital mobile phone and a GSM data card. Also, we set up a Dayna Roamer local wireless network to give wireless connectivity within the lab.



[The Newton Satchel Movie \(Quicktime: 5 minutes & 44Mbytes!\)](#)



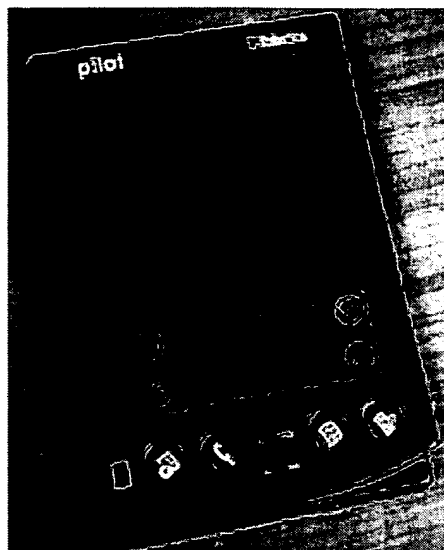
The Minder Satchel

The Minder is a tiny, keychain-sized computer developed at Xerox PARC. It has a small screen, a few buttons and infra-red communications. We implemented Satchel on the Minder to demonstrate just how small a useful Satchel could be.

The Pilot Satchel

The US Robotics Pilot is a very popular PDA, particularly in the US. It is pocket-sized, and for many people has been the first commercially available mobile device that they were able to carry around all the time. It has many of the features of the Tab, but is smaller, much lighter, and the battery lasts for weeks.

Its main drawback was the lack of communication facilities: the only one it had as standard was a serial data link via a cradle to a PC. So, got out our soldering iron, added our own simple infra-red interface and wrote a basic Satchel implementation for it. The infra-red protocol is the same one that the Minder uses, so the two devices were able to exchange tokens seamlessly and communicate with the same devices.



The Nokia Satchel

The current Satchel Browser is implemented on the Nokia 9000 and 9110 Communicators, a mobile phone incorporating a sophisticated PDA. Local infrared communications, along with near ubiquitous GSM data capabilities (in Europe and Asia, at least), make this an ideal platform for Satchel.

Publications are pending, and details will appear here shortly.

Vist our current [Research Agenda](#) page, to see where we are going from here.

Other Past Projects

- [Pepys](#)
- [Video Diary](#)
- [NoTime](#)
- [Human Memory Prosthesis](#)
- [Forget-me-not](#)
- [Memory Research](#)

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What is Satchel?



Satchel provides mobile professionals with roving access to all their electronic documents and document services, but without the usual difficulties associated with carrying and using a laptop PC.

Mobile work is mostly paper-based, collaborative, face-to-face, and often conducted in unfamiliar, even stressful conditions of limited duration. Laptops duplicate the functionality of the desktop PC, a device designed to

support a wide variety of solitary document-intensive activities in relaxed and familiar surroundings.

Satchel is tailored for mobile document work. Because ease of use is crucial in this context, Satchel's functionality has been expressly limited to achieve this goal. The support it provides is specialised for the most important and prevalent away-from-the desk tasks including: exchanging, printing and filing documents.

Satchel provides streamlined access to documents while away from the desk; it aims to make the exchange of electronic documents as easy as handing over paper documents; and to ease the transition of documents between the paper and electronic worlds.

To the user, Satchel has three main components: a *portable user interface* which can be carried around everywhere, perhaps embedded in a cellular telephone or electronic organiser; an *electronic filing system*, linked to the user's standard office information system; and a network of *document services* specialised for away-from-the-desk activities.

Key Features

Satchel:

- ✓ is small enough to fit in a pocket or a handbag, and can thus be taken everywhere;
- ✓ starts instantly, and is always ready for use in unanticipated situations;
- ✓ provides rapid access to a potentially huge collection of documents of any size;
- ✓ can print any document to a nearby printer or fax machine;
- ✓ provides convenient access to network-based specialised document services.

Satchel provides especially simple, *streamlined* ways to:

- ✓ print documents to a nearby printer;

[Home](#)

[Showroom](#)

[Research](#)

[Development](#)

[Publications](#)

[People](#)

[Search](#)

[Contact](#)

[Feedback](#)

[Employment](#)

[Site Map](#)

[MDS Links](#)

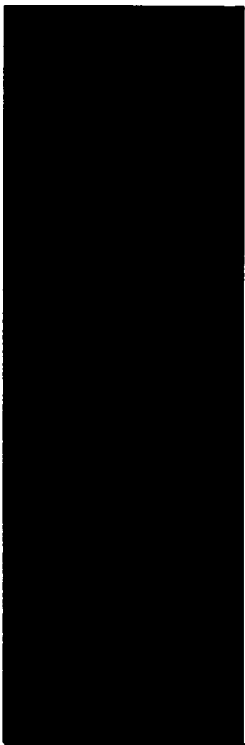
[Home](#)

[Background](#)

[Past Projects](#)

[Research Agenda](#)

[People](#)

- 
- ✓ scan paper documents into electronic form from a nearby scanner;
 - ✓ instantly exchange electronic documents with other nearby Satchel owners.

Satchel does this by:

- ✓ using wireless communications, either infra-red or radio;
- ✓ exchanging *references* to documents, rather than the documents themselves, thus storage is not an issue, wireless transmission times are short, and battery life is extended;
- ✓ transparently encrypting and decrypting all authorised document transactions, so maintaining a high level of security;
- ✓ automatically and transparently converting documents into the appropriate format for printing, *even* if the application that created the document is not available or licensed to the local organisation.

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